

AS  
34. (Amended) A method according to claim 31 which comprises the Steps of transfecting cells with cDNA or cRNA encoding an ion channel of interest and cloning cells expressing the ion channel of interest.

OK  
46. (Amended) A method according to claim 21 wherein, subsequent to pore formation, the substrate is exposed to localised heat and/or to electrical plasma in order to impart an appropriate raised level of smoothness to the pore(s).

**REMARKS**

Non-elected claims 39-45 have been cancelled and the multiple dependency of the elected claims has been corrected to advance the prosecution of this application.

Examination of claims 1-38 and 46 is requested.

If there is any fee due in connection with the filing of this Preliminary Amendment, please charge the fee to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
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Dated: July 18, 2002

By: 

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## APPENDIX TO PRELIMINARY AMENDMENT OF JULY 18, 2002

### Version with Markings to Show Changes Made

#### Amendments to the Claims

4. (Amended) A structure according to [any preceding] claim 1 which comprises a plurality of ion channels or transporters which are predominantly preselected ion channels or transporters of interest.
5. (Amended) A structure according to [any preceding] claim 1 which comprises genetically engineered cells which have been engineered to predominantly express an ion channel or transporter.
6. (Amended) A structure according to [any preceding] claim 1 which comprises voltage gated ion channels.
7. (Amended) A structure according to [any one of claims] claim 2 [to 5] wherein the cells are selected from the group which comprises HEK-293 cells, genetically modified Chinese hamster ovary (CHO) cells, primary neuronal tissue such as hippocampus, dorsal root ganglia, superior cervical ganglia etc.; skeletal muscle; smooth muscle; cardiac muscle; immune cells; epithelia; endothelia.
8. (Amended) A structure according to [any preceding] claim 1 which comprises an ion channel having rapid activation and inactivation kinetics.
9. (Amended) A structure according to [any preceding] claim 1 having an ion channel which shows specificity for an ion selected from the group which comprises sodium, potassium, calcium, chloride.

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10. (Amended) A structure according to [any one of claims] claim 2 [to 9] wherein the contiguous layer of cells is capable of adhering with a high resistance seal to a substrate selected from the group which comprises glass, plastics, rubber, polytetrafluorotethylene (PTFE), PTFE/glass fabric and polyethylene terephthalate (PETP).

11. (Amended) A structure according to [any preceding] claim 1 which comprises a pseudo-epithelium wherein one face of a contiguous layer of cells is permeabilized thereby providing access to the interior of the cells.

13. (Amended) A structure according to [any preceding] claim 1 wherein the substrate is perforated.

14. (Amended) A structure according to [any preceding] claim 1 which comprises a perforated coverslip.

15. (Amended) A structure according to [any preceding] claim 1 wherein the substrate has pores of diameters between 0.5 $\mu$ m and 10 $\mu$ m.

18. (Amended) A structure according to [any preceding] claim 1 which comprises a coverslip having a grid of pores.

19. (Amended) A structure according to [any preceding] claim 1 which comprises a perforated substrate which is manufactured of a material selected from the group which comprises glass, plastics, rubber, polytetrafluorotethylene (PTFE), PTFE/glass fabric and polyethylene terephthalate (PETP).

20. (Amended) A biological membrane for use in the structure according to [any preceding] claim 1.

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21. (Amended) A substrate for use in the structure according to [any one of claims] claim 1 [to 19].

22. (Amended) A high throughput screen for detecting and assaying compounds with activity on voltage gated ions channels which comprises a structure according to [any one of claims] claim 1 [to 19, a biological membrane according to any claim 20 or a substrate according to claim 21].

26. (Amended) A high throughput screen according to [any one of claims] claim 22 [to 25] which comprises a recording head having a single recording electrode capable of being moved to visit each chamber sequentially.

27. (Amended) A high throughput screen according to [any one of claims] claim 22 [to 25] which comprises a recording head having a plurality of recording electrodes arranged in a line.

28. (Amended) A high throughput screen according to [any one of claims] claim 22 [to 25] which comprises a recording head having a plurality of recording electrodes arranged in a matrix.

29. (Amended) A method of manufacturing the structure of [any one or claims] claim 1 [to 19] which comprises [he] the steps of selecting a substrate, perforating it, introducing a biological membrane to the substrate and sealing each pore with biological membrane.

34. (Amended) A method according to [any one of claims] claim 31 [to 33] which comprises the Steps of transfecting cells with cDNA or cRNA encoding an ion channel of interest and cloning cells expressing the ion channel of interest.

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46. (Amended) A method according to [any of claims] claim 21[, 30 and 35 to 38] wherein, subsequent to pore formation, the substrate is exposed to localised heat and/or to electrical plasma in order to impart an appropriate raised level of smoothness to the pore(s).

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